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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/696,240	CHUDNOVSKY ET AL.	
	Examiner	Art Unit	
	Adam S. Weintrop	2145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 September 2004 and 28 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/19/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.

In response to this requirement, please provide a copy of each of the following items of art referred to in the specification on pages 13-14, section 0053, page 18, section 0075, page 23, section 00108, and page 25, section 0012.

In responding to those requirements that require copies of documents, where the document is a bound text or a single article over 50 pages, the requirement may be met by providing copies of those pages that provide the particular subject matter indicated in the requirement, or where such subject matter is not indicated, the subject matter found in applicant's disclosure.

The fee and certification requirements of 37 CFR 1.97 are waived for those documents submitted in reply to this requirement. This waiver extends only to those documents within the scope of this requirement under 37 CFR 1.105 that are included in the applicant's first complete communication responding to this requirement. Any supplemental replies subsequent to the first communication responding to this requirement and any information disclosures beyond the scope of this requirement under 37 CFR 1.105 are subject to the fee and certification requirements of 37 CFR 1.97.

The applicant is reminded that the reply to this requirement must be made with candor and good faith under 37 CFR 1.56. Where the applicant does not have or cannot readily obtain an item of required information, a statement that the item is unknown or cannot be readily obtained may be accepted as a complete reply to the requirement for that item.

This requirement is an attachment of the enclosed Office action. A complete reply to the enclosed Office action must include a complete reply to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action.

Claim Objections

2. **Claims 3-17, 19-26, and 28-31** are objected to because of the following informalities:

Regarding **claims 3-17 and 28-31**, the first line of every claim states "A method". This should be replaced with --The method-- to clarify the claim language.

Regarding **claims 19-26**, the first line of every claim states "A carrier medium". This should be replaced with --The carrier medium-- to clarify the claim language. Appropriate correction is required.

Regarding **claims 3 and 8**, the claims are repeated and depend from the same independent claim 2; therefore only one of the claims is necessary.

Regarding **claims 28 and 29**, the claims are repeated and depend from the same independent claim 27; therefore only one of the claims is necessary.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 2, 4, 6, 12-19, and 25-26** are rejected under 35 U.S.C. 102(b) as being anticipated by Berstis et al. (US 6,092,100).

Regarding **claims 2 and 18**, Berstis et al. anticipates:

A carrier medium carrying at least one computer readable code segment for instructing a processor of a processing system to implement a method, as required by claim 18, the method for resolving a possibly incorrectly entered URL comprising (Abstract): accepting the entered URL (column 2, lines 51-53, with the client specifying the URL);

Parsing the accepted URL into URL parts (column 2, lines 14-19, where the distributed approach performs searching on different parts of the URL, seen as parsing the URL into parts);

Carrying out a conventional URL lookup (column 2, lines 53-56, with conventional URL lookup); and

For any part of the accepted URL that is not valid:

determining a signature for the accepted URL part (column 7, lines 3-12, where the indexing of the URL parts entered is seen as determining its signature, since it defines the URL string as a search key); and

conducting a fuzzy search for at least one valid URL part that is close to the invalid URL part according to a distance measure that combines at least one local measure, each measure suited for a particular type of URL part (column 7, lines 10-16 and 46-55, where the fuzzy search is performed on the invalid parts of the URL, column 8, lines 1-3, where distance is computed and found, and column 5, lines 14-19 and 36-49, where each URL part has a fuzzy search performed on it according to if its an IP type or a directory type, seen as searching and computing a measure of distance suited for each URL part).

Regarding **claims 4 and 19**, Berstis et al. anticipates:

A method as recited in claim 2 or a carrier medium as recited in claim 18, further comprising forming at least one valid URL from the URL parts found in the fuzzy search (column 8, lines 14-20, where the result URL is found from all the search parts and returned to the user).

Regarding **claim 6,** Berstis et al. anticipates:

A method as recited in claim 2, wherein conducting the fuzzy search occurs at different parts of a computer network according to the type of part that was carrying out the conventional URL lookup determines is not valid (column 5, lines 14-19 and 36-49, where the search is performed at the client and server according to what part is valid).

Regarding **claims 12 and 25-26**, Bersits et al. anticipates:

A method as recited in claim 2 or a medium as recited in claim 18, wherein the local measures include at least one distance measures from the set consisting of a string comparison measure for URL parts for which string comparison is appropriate, a phonetic difference for URL parts for which sound comparison is appropriate, image comparison for URL parts that include glyphs/images for which image comparison is appropriate, and a numerical difference for URL parts that are numerical and for which numerical comparison is appropriate (column 8, line 66-column 9, line 2, where string comparison occurs, which is at least one of the set of local measures needed).

Regarding **claims 13-14**, Berstis et al. anticipates:

A method as recited in claim 6, wherein the computer network is the Internet or a private network (column 3, lines 59-61, where the Internet or a private intranet can be used).

Regarding **claim 15**, Berstis et al. anticipates:

A method as recited in claim 4 further including the steps of:
displaying a list of formed URLs to a user of a IP client (column 8, lines 17-18); and
prompting the user of the IP client to select a one of formed URLs in the list (column 8, lines 18-20).

Regarding **claims 16-17**, Berstis et al. anticipates:

A method as recited in claim 2 wherein the fuzzy search is performed at a client of a computer network or a server of a computer network (column 5, lines 36-38, where the search is done at the client and server).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **Claims 1, 3, 7-11, 20-24, and 27-32** are rejected under 35 U.S.C. 103(a) as being unpatentable over Berstis et al. (US 6,092,100) in view of Schuetze et al. (US 6,598,054).

Regarding **claims 1 and 32**, Berstis et al. teaches:

A method comprising:

accepting a string of characters representing a possibly incorrectly entered URL, each symbol being a text character, phenome, or glyph (column 2, lines 51-53, with the client specifying the URL being text);

parsing the string into a set of URL parts (column 2, lines 14-19, where the distributed approach performs searching on different parts of the URL, seen as parsing the URL into parts), a part formed from characters having values in a first space of characters, each part having a corresponding distance measure of closeness for measuring distances between URL parts (column 7, lines 10-16 and 46-55, where the fuzzy search is performed on the invalid parts of the URL, column 8, lines 1-3, where distance is computed and found);

forming a signature of each URL part, forming said signature including

transforming the characters of the URL part whose values are in the first space into characters in a second space such that the distance measure of closeness is transformed to a distance measure of closeness that is not necessarily integer

valued (column 8, lines 1-13, with a not necessarily integer valued function being used to rank the best match and it is based on the lexicon and the candidate URL, which is seen as determining a signature since it uses the intersection operation to generate results or signatures and transforming the characters into a second space being not necessarily integer valued for comparison).

Berstis et al. does not teach:

For each URL part, searching for at least one cluster of a set of pre-formed clusters, the set of pre-formed clusters being clusters of valid URL parts that are close according to the distance measure of closeness that is not necessarily integer valued, each cluster in the set of pre-formed clusters having a representative URL part and signature thereof, the searching using the signature of the URL part;

further searching for a valid URL part within each cluster found in the searching step.

The general concept of using a URL part to search a preformed cluster of URL parts, with each cluster having a signature URL part is well known in the art as illustrated by Schuetze et al. Schuetze et al. teaches:

For each URL part, searching for at least one cluster of a set of pre-formed clusters, the set of pre-formed clusters being clusters of valid URL parts that are close according to the distance measure of closeness that is not necessarily integer valued, each cluster in the set of pre-formed clusters having a representative URL part and signature thereof, the searching using the signature of the URL part (column 20, line 66-column 21, line 1, where searching of a preformed cluster is performed, column 19, lines 35-40, where clustering of documents is performed, column 13, lines 61-65, where the feature vectors can be formed from URL parts, column 9, lines 61-67, where the vectors are used for similarity, and column 24, lines 43-48, where signatures are determined and used to search, seen as the common set of words) ;
further searching for a valid URL part within each cluster found in the searching step (column 8, lines 17-19, where the browsing of the collection results in finding the match).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Berstis et al. with using clustering techniques performed on URL parts as taught by Schuetze et al. in order to adapt clustering to a multi-modal approach, with one mode being text matching of URL parts as to recall unknown strings by relation to one another as noted in Schuetze et al.'s disclosure on column 3, lines 38-47.

Regarding **claims 3, 8, 9, 21, 22, 28 and 29,** Berstis et al. teaches:

Wherein the not-valid accepted URL part or the source URL part includes characters in a first space wherein a distance measure of closeness is integer-valued (column 7, lines 46-66, where indexing the URL part consists of hashing the string and intersecting a lexicon into it, with the lexicon organized based on character occurrences, seen as an integer based closeness).

Berstis et al. does not teach:

Wherein the determining of the signature of the accepted URL part includes converting the first space into a second space such that the signature of the URL part is a sequence of values in the second space, the second space being a space wherein the distance measure for comparing signatures of URL parts is non-integer or a general distance function in a metric space, as required by claims 3, 8, and 9, such that cluster analysis can be performed on signatures of valid URLs or URL parts.

The general concept of using a URL part to search a preformed cluster of URL parts, with each cluster having a signature URL part is well known in the art as illustrated by Schuetze et al. Schuetze et al. teaches:

Wherein the determining of the signature of the accepted URL part includes converting the first space into a second space such that the signature of the URL part is a sequence of values in the second space, the second space being a space wherein the distance measure for comparing signatures of URL parts is non-integer or a general distance function in a metric space such that cluster analysis can be performed on signatures of valid URLs or URL parts (column 20, line 66-column 21, line 1, where searching of a preformed cluster is performed, column 19, lines 35-40, where clustering of documents is performed, column 13, lines 61-65, where the feature vectors can be formed from URL parts, column 9, lines 61-67, where the vectors are used for similarity, and column 24, lines 43-48, where signatures are determined and used to search, seen as a non integer search, and the signatures are seen as the common set of words).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Berstis et al. with using clustering techniques performed on URL parts as taught by Schuetze et al. in order to adapt clustering to a multi-modal approach, with one mode being text matching of URL parts as to recall unknown strings by relation to one another as noted in Schuetze et al.'s disclosure on column 3, lines 38-47.

Regarding **claims 7 and 20**, Berstis et al. teaches all of the limitations as described above, except:

Wherein conducting the fuzzy search includes:

determining at least one cluster of a set of pre-formed clusters wherein the accepted URL part is likely to be, each cluster comprising a set of valid URL parts that are close according to a distance measure and having a representative URL part having a known signature, the determining including finding the at least one signature of representative URLs close to the signature of the accepted URL part (column 20, line 66-column 21, line 1, where searching of a preformed cluster is performed, column 19, lines 35-40, where clustering of documents is performed, column 13, lines 61-65, where the feature vectors can be formed from URL parts, column 9, lines 61-67, where the vectors are used for similarity, and column 24, lines 43-48, where signatures are determined and used to search, seen as the common set of words); and

further searching for a valid URL part within the at least one determined clusters (column 8, lines 17-19, where the browsing of the collection results in finding the match).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Berstis et al. with using clustering techniques performed on URL parts as taught by Schuetze et al. in order to adapt clustering to a multi-modal approach, with one mode being text matching of URL parts as to recall

unknown strings by relation to one another as noted in Schuetze et al.'s disclosure on column 3, lines 38-47.

Regarding **claims 10, 23, and 30**, Berstis et al. and Schuetze et al. teach all of the limitations as described above except for a method as recited in claims 8 or 28 or a medium as recited in claim 21, wherein the second space is n-dimensional Euclidean space such that the signature of the URL part is a sequence of n-dimensional vectors. The general concept of having the second space be a sequence of n-dimensional vectors is well known in the art as illustrated by Schuetze et al. Schuetze et al. teaches that documents are mapped into multi dimensional vector spaces for clustering (column 9, lines 65-67). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Berstis et al. and Schuetze et al. with the further teaching of using multi dimensional vector spaces as taught by Schuetze et al. in order to adapt clustering to text matching of URL parts as to recall unknown strings by relation to one another as noted in Schuetze et al.'s disclosure on column 3, lines 38-47.

Regarding **claims 11, 24, and 31**, Berstis et al. and Schuetze et al. teach all of the limitations as described above, however Berstis et al. does not teach: a method as recited in claims 10 or 30 or the medium as recited in claim 23, wherein the values of the converted characters are on the unit sphere such that

the second space is transformed to the n-dimensional unit sphere, wherein the signature of the URL part is a sequence of n-dimensional vectors on the unit sphere, and wherein calculating the distance between two URL parts can be carried out by a convolution-like operation on the signatures of the two URL parts. The general concept of performing a math function to determine matches of URL parts for cluster searching is well known in the art as illustrated by Schuetze et al. Schuetze et al. teaches that a vector encoding process of any document is performed using vector math (column 12, lines 16-52). The specific use of a unit sphere for the vector calculation is a matter of design choice and it would have been an obvious matter of design preference depending upon such factors as processing complexity and speed; the ordinarily skilled artisan choosing the best vector function which would most optimize the cost and performance of the device for a particular application at hand, based upon the above noted common design criteria.

Regarding **claim 27**, Berstis et al. teaches:

A method of conducting a fuzzy search for a source URL part that closely matches a valid URL part, comprising:
determining a signature for the source URL part (column 7, lines 3-12, where the indexing of the URL parts entered is seen as determining its signature, since it defines the URL part as a search key).

Berstis et al. does not teach:

Determining at least one cluster of a set of pre-formed clusters wherein the source URL part is likely to be, each cluster comprising a set of valid URL parts that are close according to a distance measure and having a representative URL part having a known signature, the determining of the likely clusters including finding at least one signature of representative URLs close to the signature of the accepted URL part; and
further searching for a valid URL part within the at least one determined cluster.

The general concept of using these clustering techniques is well known in the art as illustrated by Schuetze et al. Schuetze et al. teaches:

Determining at least one cluster of a set of pre-formed clusters wherein the accepted URL part is likely to be, each cluster comprising a set of valid URL parts that are close according to a distance measure and having a representative URL part having a known signature, the determining including finding the at least one signature of representative URLs close to the signature of the accepted URL part (column 20, line 66-column 21, line 1, where searching of a preformed cluster is performed, column 19, lines 35-40, where clustering of documents is performed, column 13, lines 61-65, where the feature vectors can be formed from URL parts, column 9, lines 61-67, where the vectors are used for similarity, and

column 24, lines 43-48, where signatures are determined and used to search, seen as the common set of words); and

further searching for a valid URL part within the at least one determined clusters (column 8, lines 17-19, where the browsing of the collection results in finding the match).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Berstis et al. with using clustering techniques performed on URL parts as taught by Schuetze et al. in order to adapt clustering to a multi-modal approach, with one mode being text matching of URL parts as to recall unknown strings by relation to one another as noted in Schuetze et al.'s disclosure on column 3, lines 38-47.

7. **Claims 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Berstis et al. (US 6,092,100) as applied to claims 2 and 18 above, and further in view of Schuetze et al. (US 6,598,054), Choi et al. (US 6,581,034), and Mason (US 7,130,923).

Regarding **claim 5**, Berstis et al. teaches all of the limitations as described above including a method as recited in claim 2, wherein each URL part includes characters from a corresponding alphabet, the alphabet being of letters in the case of text (column 2, lines 7-10, where the character string of a URL is seen as text letters).

Berstis et al. does not teach using phonemes in the case of sounds, glyphs in the case of glyphs/images, and numbers in the case of a numerical URL parts. The general concept of using sounds as the URL part is well known in the art as illustrated by Choi et al. Choi et al. teaches that transcriptions of phonetic sounds can be compared for distance measurements (column 3, lines 42-55, where phonetic transcriptions are seen as an alphabet for sounds). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Berstis et al. with using phonetic sound alphabets as taught by Choi et al. in order to accurately search words based on pronunciations as noted in Choi et al.'s disclosure in column 3, lines 32-39.

The general concept of using glyphs for image comparison is well known in the art as illustrated by Schuetze et al. Schuetze et al. teaches that image comparison can be performed and is compared against other images (column 22, lines 34-47, where images are analyzed and used for clustering). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Berstis et al. with using images as taught by Schuetze et al. in order to use a multi-modal approach as to increase search relevancy as noted in Schuetze et al.'s disclosure in column 3, lines 38-47.

The general concept of using numerical comparison is well known in the art as illustrated by Mason. Mason teaches URL comparison that can use a numerical base (column 7, lines 41-52, where the text and numbers are compared, and this is seen as using numbers for numerical URL parts). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Berstis et al. with using numerical comparison as taught by Mason in order to compare within the strings comprising the URL as noted in Mason et al.'s disclosure in column 2, lines 32-34.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mukherjea et al. (US 6,415,282) teaches a clustering system for text, images, and URL databases.

"URL Spell Check" (Port80 Software) teaches a URL redirection system based on spelling errors.

"Technique for automatically correcting words in text" (Kukich) teaches methods for correcting words in a text with pattern matching and spelling matching algorithms.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adam S. Weintrop whose telephone number is 571-270-1604. The examiner can normally be reached on Monday through Friday 7:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Cardone can be reached on 571-272-3933. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AW 6/18/07

JASON CARDONE
SUPERVISORY PATENT EXAMINER